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An Inaugural Essay on Aneurism from Anastomosis.

For the Degree of Doctor of Medicine in the University of Pennsylvania.

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Aneurism from Anastomosis.

Confiteor; si quid prodest delicta fateri.
I grant the charge; forgive the fault confessed.

The disease which is now recognised under the title of Aneurism from Anastomosis, appears from Medical history, to have been observed by the Surgeons of the earliest times. There are many cases on record, under the head of "Bloody and Anomalous tumours", which as they prove that the disease was not more rare among the ancients than it is at the present day, likewise show their entire ignorance of its structure, true nature, and consequently the proper method of treatment. This obscurity continued to be unenlightened for many ages, and it was not until the time of Mr. John Bell that any certain and lucid account of this disease made its appearance. To his labours, the science is indebted for a correct demonstration of its character as also the means of cure. He gave to it the —

name of "Aneurism from Anastomosis," in consideration of its being a tumour formed of the minute arteries, accompanied by pulsation and not being peculiar to any part of the body.

Since the publication of ~~it~~ his views, it has been uniformly adopted as one of that class of the diseases of the arteries, called Aneurisms.— Mr. Bell in his "Principles of Surgery," has spoken of an operation, at which he was present, which would lead us to infer, that its aneurismal character was suspected, even prior to the observations, he subsequently instituted.

The Surgeon in that case under the belief that he was operating on the known kind of aneurism, cut through the centre of the tumour to the bone, that he might tie the principle artery or arteries, from which it derived its support. It is needless to add, he was foiled, and that he was embarrassed by a hemorrhage from all quarters, which scarcely proved controlable.

This case demonstrates very clearly that a definite idea of its true complexion, was not entertained at that time. And it is now a matter of sur=prize, how it should have escaped the detec=tion of the many accurate observers, who have graced our Profession for so many ages. —

Mr. Bell has described the aneurism from Anastomosis, as consisting of a congeries of ac=tive vessels, sometimes barely piercing through cellular substance, sometimes communicating with larger cells, and sometimes forming a=round remarkable sacs or cavities in the centre of the tumour, containing either a co=agulum or a serous effusion. — The cutane=ous capillaries are first found to be impli=cated, when the skin assumes this unna=tural condition. These commence an increas=ed action, which soon draws the arteries of ad=joining parts into sympathy with them; the central group, thus nourished from behind act powerfully; the tumour begins its pulsa=

=tions, and forms repels as it were, by enlarging these small branches, which were not before vi=
=sible.— Now the same sympathetic disposi=
=tion exists between the venous capillaries, and their contiguous veins, that is maintained between the diseased arteries and those of the neighbouring parts, and hence, the result, of a forced rapidity of circulation thro' the tumour constituting those phenomena which cha=
=racterise the disease.—

When cut into, Mr. Bell has compared this tu=
=mour to the "Gills of a turkey cock, or the substance of the Placenta, Spleen, or Womb". Baron Dupuy=
=tran to the "Corpora Cavernosa Penis". And Mr. Hodgeson" to that imaginary parenchyma, which the early anatomists imagined to be interposed between the extremities of the ar=
=teries and veins in all parts of the body.

Dupuytran believes that the arteries are in an aneurismal state, entangling their extreme ramifications in a thousand dif=

=ferent ways. And this we believe to be their con=
=dition; moreover that this condition, is the conse=
=quence of an inflimation of the coats of the vessels
themselves. We know that what is called an -
aneurismal diathesis, is understood to signify
an inflamitory predisposition of the arterial tree
generally, which becomes concentrated in cer=
=tain points, by means not yet satisfatorily explain=
=ed. Now here in the first place we have a defect
or derangement of the extreme vessels, an effort
of nature to remedy this disorder, produces inflama=
=tion, which failing to restore the proper equili=
=brium, the contest becomes more violent, and
an aneurismal state supervenes. Again all
those agents which are found to affect a part
in a state of inflimation, are observed to exert
a similar power over the aneurism from anas=
=tomosis. That inflimation attends the after sta=
=ges of the tumors, we have the most conclusive
evidence, in the ulceration* which invariably oc=
=curs, if the disease be permitted to run on.

Mr. Bell has stated that the parts adjoining are drawn into a sympathetic consent with the diseased group of primary vessels — and in submission to his authority, and the accepted views of the Profession. I have several times employed the same language, tho' I should much prefer ascribing, what he has given to sympathy, to the continuous inflamation, as a cause in every way adiquate to the effect. —

The Aneurism being established, is marked by the following signs. — Its first appearance, is that of a small speck or pimple, with scarce any discolouration of the skin; Its growth is slow, but incontrolable; at first it has only a kind of indistinct, and tumbling throb, such as is distinguished in Aneurismal varix. But — when the tumour is fully formed, its pulsations are regular, distinct, and continual. — Every occasional exertion of body, and mind, causes it to beat more violently. In Spring & Summer, particularly the former, the circula-

tion

=tion being more enlarged, it becomes turgid, with a fuller and stronger pulsation. During the period of menstruation, it beats powerfully; and by this incipant pulsation, and occasi=
=onal turgescence, it forms among the cellular substance, or among the dilated veins, sacs of blood. These little sacs, form apices and tu=
=ber points, which become livid, and very thin ulcerate and burst from time to time; until this aneurism, like other aneurisms, pours out its blood so profusely, as to reduce the pa=
=tient to extreme weakness. —

To Mr. Bell I am indebted for this very accu=
=rate account of the growth and progress of this disease, being apprised that none, I could fur=
=nish, would be more elegant, lucid or concise. — It will be seen, from the forgoing description of this disease, that its marks are so distinctive, as always from a knowledge of them, to enable us to recognise it under all circumstances. — And yet this tumour, is not unfrequently col=
=led

=led Nævus Maternus, by some of our most en=
=lightened Surgeons, even of the present day. But
that they have confused the two together, is a=
=bundantly evident from facts. The one being a true
Nævus, the other a true aneurism from anasto=
=mosis. It is possible, (and indeed we shall ex=
=minate it among the causes) for this disease to
grow out of a Nævus Maternus, but when it as=
=sumes the aneurismal form, it no longer con=
=tinues to be a Nævus, it ~~both~~ looses both its
name and nature. — I have said that the
various states of body and mind, rest and mo=
=tion, have a direct and immediate effect on
this tumour. Thus the exercise of walking, run=
=ning, leaping, riding, &c., always cause it to
pulsate quickly and strongly. Stimulant food
and drinks, have a similar effect. Venery, fright,
anger, crying, in fact any thing that quick=
=ens the circulation, will increase its turges=
=ence, with a ~~fr~~ more powerful pulsation.

Pain is not experienced at first, but most

commonly accompanies the latter stages of the disease. — The singular connection which is found often times to exist between this aneurism, and the catamenial discharge, deserves consideration. Of the fact there can be no doubt, and we have here a striking example of that extensive sympathy between the uterus and all parts of the body. During Menstruation as has been observed, it beats powerfully, bursts and bleeds copiously, sometimes however not sensibly affecting the quantity of the secretion. But again it not only diminishes it, but even in some cases stops it altogether, assuming to itself a vicarious office. It appears the due development of the genital organs and mamma, at their proper time. Mr. Bell has recorded a case, where the menstrual evacuation was completely suspended, and the evidences of puberty, postponed to a late date. Van Helmont has declared, "Propter solum uterum mulier est, id quod est". And with some limitation, the aphorism is

correct. For deprive the Uterus of its functions, & the disaster will be felt in all its consequences.

Among the causes of this aneurism, may be enumerated. — Congenital marks or defects of the skin, contusions, prepuce, &c., The pitting of a pimple, will cause it to degenerate into this form of disease. A febrile state of the system has been known to produce it. (vide Mr. Bell's case of Aneurism from Anastomosis of the Rectum in Vol 1 of his Principles of Surgery.) There are other causes of which we cannot speak so certainly, as of the above. This Aneurism is not peculiar to any part of the body. It has been situated on the head, face, superior and inferior extremities, on the Buttocks, and in the Rectum. Tho' the head and face on account of their greater vascularity, and exposure to the common causes mentioned above, are most liable to it.

Treatment.

The records of Surgery, furnish but one case, where the entire removal of the tumour had been effected by a spontaneous cure. The case occurred in the practice of my former Preceptor Dr. William Bradley Tyler of Maryland. I had it in view, when I selected Aneurism from Anastomosis as the Subject of an Inaugural Essay. And did hope, to have given an interesting details of it, but regret to say, there is nothing save the spontaneous cure, of any peculiar interest. As an anomaly in Surgical history, it is worthy of consideration. I shall give, therefore, such a history of the case, as the politeness of Dr. Tyler has furnished me, which must necessarily be in some degree imperfect, owing to the lapse of time since its occurrence. "He states that it proceeded from a congenital mark, was seated principally over the left Parotid gland. Spreading however partially over the angle of the Inferior Maxillary bone and involving the whole lobe of the ear. During the

first months of infancy, it wore an uniform, bright florid aspect, rendered more conspicuous when contrasted with the clear, healthful complexion of the surrounding surface. The temperature of the part, was sensibly elevated, and its pulsations, tho' indistinct at first, became stronger and more decided, as the child grew. It continued to increase 'till the patient was about Eighteen months old, when she had an attack of Fever, during the exacerbations of which, the turgescence, heat, and pulsations were manifestly increased. At this time a superficial ulcer formed over the whole surface of the tumour. (Which was never attended however by hemorrhage.) The discharge from this ulcer was never great, and as regards consistence, colour, and other sensible properties, was analagous to the fluid thrown out from parts fretted, and irritated by the accumulation of perspirable matter, resulting from neglected ablution in infants. — The appearance of the tumour, during the ulceration

was of course changed, and men afterwards a~~sum~~-sumed its primitive aspect. For as the ulcer healed, and the health of the child returned, the growth of the aneurism was evidently checked, it gradually diminished, and finally a spontaneous cure has resulted.

Dr. Tyler is disposed to attribute the removal of the tumour to the ulceration. But if it be permitted to differ from so high authority, and the Pathology above suggested, be admitted, the cure may be ascribed to an agent no less effective.

For let it be remembered that the ulceration was confined to the cuticle, that hemorrhage at no time accompanied it, and consequently that it could not have reached the vessels themselves and we are instantly convinced that it may be attributed to another cause, with at least equal propriety. Had the ulcer penetrated into the diseased mass, had it eaten out as it were, the enlarged vessels, then there would have been healthy granulations to repair the disorganization

we should have had new, and undiseased vessels and altogether a new structure. But the absence of all hemorhage proves that this did not take place. And we must look to something else, for an explination of the phenomenon. —

Now if it be recollected that the child la= =boured under an attack of Fever at the same time, which must have exercised the most powerful influence on the general system, breaking down all other morbid associations, and assuming to itself, the whole frame, as its throne, we have a solution of the difficulty. — If the aphorisms of Mr. John Hunter, be ad= =mitted. "That no two stimulis can exist si= =multaneously in the same system." We would say that the stimulus of the topical affection, being withdrawn by the general excitement; the recuperative powers of nature overcame the inflammatory state of the minute vessels, and healthful reaction took place. —

No medical or surgical treatment whatever

was practised in this case, except it may have been Antiperiodic medicines, administered to the fever. —"—

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There are three modes of operating on this disease, as recommended by Surgeons of the present day – viz – By Pressure, by Tucking the Artery or Arteries supplying the Tumour, and by Excision. —

Of the first we shall say but little. Entertaining the views of the Pathology of this form of Aneurism, that we do, our approval cannot be expected, of any treatment, which is either irritating in itself or its consequences. It has however been tried and in some instances with the happiest effect, but in many more it has failed, tending to the aggravation of the disease. When the tumour is situated over a superficial bone, so that firm and continued pressure could be made, It would no doubt cause its removal, if applied in the very incipiency, but

it is only under such circumstances, that it can be recommended. In all other cases it has uniformly been found to do mischief. —

Of the Second we think more favorably, cases have occured and may occur again, where it alone can be resorted to, with security to the patient, or credit to the surgeon. an Aneurismal tumour can be so situated, as to be out of the reach of the other means of subduing it, and all that we can attempt, is to cut off the supply of blood, and happily, it is found sometimes to be efficient. — Mr. Travers was the first to introduce this operation to the Profession. a woman, whose eye was thrust forward by a pulsating tumour from behind, which filled the quatro part of the orbit, called upon him for relief. Mr. Travers immediately determined to secure the common Carotid of the same side, and accordingly put a ligature around it. The effect was instantly experienced by the patient, the tumour gradu=

=ally

=ally subsided, and in two years after the ope=ration scarce any vestiges of it remained. — The process of cure was unassisted by depletion or abstinence, which, if it had been practised, no doubt would have accelerated it. — Mr. Dalrymple has likewise performed a similar operation, and I believe with like success. — These cases bring to my recollection, an operation which I heard of, as performed by a young practitioner of my native state. The patient was also a woman. — She had two tumors, one situated behind the ball of either eye, deep in the sockets. The eyes were very much protruded, and blindness was the consequence. Her suffering was great, and she was willing to submit to any thing. — This gentleman formed the bold project of tying both Common Carotids, and did so. The experiment was attended with complete success, the tumors rapidly diminished, the eyes returned to their sockets, and the sight was restored

=stored, she now lives in comparative ease and comfort. I did not hear that this was aneurism from anastomosis, but as it bore some resemblance, to Mr. Travers' case and was cured by the same means, it may not be inapt to mention it. — These cases should be borne in mind, as they may often supersede the horrid operation of extirpation of the eye. — But it may be remarked of this second method of combating ~~the disease~~ this disease, that it is always attended with uncertainty. According to circumstances it may or it may not succeed. — The anastomosis of the vessels of different parts, is so frequent, as almost to discourage us from the attempt. It has however this decided advantage over the first; viz. It never aggravates the disease. — When the complete and entire removal of the tumour can be effected, it is to it alone we can look with confidence for a radical cure. If the operation be performed in proper time, and the whole diseased mass

extirpated, it has never been known to deceive the expectations of the Surgeon.

Mr. Bell has particularly enforced it, that we must not "~~Cut this~~" Cut into this tumour, but cut it out." Should the surgeon instead of making his incision around the disease, thro' the healthy flesh, plung the knife among the enlarged vessels, he will find himself embar=rassed by a hemorrhage, so copious, that if not speedily controulled, may have his pa=tient a corse under his hands. Whereas if the incision be clear of every diseased vessel, the bleeding will be little or nothing, and your patient will have every seeming prospect of ul=timate relief. Some regard must be had to the state of the patient at the time of operating. It will therefore be highly proper, to prepare the system, by low diet, occasional bloodletting and rest. this course will not only be advan=tageous in lessening irritability during the operation, but chiefly so in meliorating subsi=

=quent

=quent inflimations. Again in females the ope=
=tion should not be undertaken during men=
=strualtion. The state of the system at this period is too little
regarded in genral. We see diseases of all kinds
operated for in women, without a little respect
to the genral sanguineous excitement going on
at the time. The pulse, with the suffused
countenance &c. are sufficiently indicative of
the propriety of this injunction, and it is co=
=roborated by the authority of Mr. J. Bell, who
tells us that this Aneurism is formed of a
congeries of active vessels, and that every
circumstance tending to increase or dimi=
=nish this activity, must be attended to.---

Dr. Gibson has recommended a plan of
operating, where the vessels of contiguous parts
have become sympathetically enlarged and
diseased, which is deserving of our most re=
=spectful mention, both as it discovers the
decision of that gentleman, and as a suc=
=cessful means of combating a dreadful disease.

The case alluded to is detailed in the Dr.
-s Institutes of Surgery - Vol 2 - pages 153 & 4. -
to which I must refer you for a more full
account, than my limits will enable me
to give. — Elizabeth Laushe having a
large pulsating tumour on the right side
of her head, applied to Dr. Gibson. On exami-
-ning the tumour, he found it to be not only
of an enormous size, but the vessels leading
to it very numerous and greatly enlarged.
Deeming it madness to think of removing
so large a mass, in such a condition, by a sin-
-gle operation, and at the same time seeing
the necessity of acting promptly and decidedly,
he determined to institute several instead of
one operation. Accordingly he first secured
the principle branches of the Temporal and
occipital arteries. An Erysipilatous erupti-
-on which ensued, occasioned a week's delay,
this disappearing, the Dr. pursued the plan
he had adopted, and after three operati-
-ons

=ous (meaning the vessels as he divided them) had the satisfaction to remove completely and radi=
=cally the whole diseased mass. In due time the wound healed up, the patient recover=
=ed her health, and no return of the disease has since manifested itself. — Dr. Gibson is convinced that tying the Carotid, would have had no good effect in this case, the anastomosis was too extensive and well es=
=tablished, to have been much affected by such an expedient. — As this paper will ne=
=cessarily meet Dr. Gibson's eye, both as Professor of Surgery and my private preceptor, I am re=
=strained from rendering that tribute, to which he is entitled for this as well as many other practical lessons in Surgery. The Profession however have a just sense of his merits — and will render that which with propriety I cannot. —

— Finis. —